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# THE NATURE OF THOUGHT.

BY S. S. HEBBERD.

*Prefatory Request.*—I have been for many years engaged in verifying the doctrine of this essay. But very often the partiality of a thinker for his thoughts hides from him chasms of inconsequence that are apparent at a glance to others. I therefore send forth the essay, not for publication in the ordinary sense, but in order to submit its doctrine to the final and only decisive testing of other minds. My request, very earnestly made, is that those who discover a serious defect in the reasoning of these pages will send a brief notice thereof to my address.[1]

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## CHAPTER I.

### *The Principle and Self-Consciousness.*

*All thinking consists fundamentally in a relating of cause and effect.* To establish this principle and to make it the groundwork of philosophy is the object of this essay.

Two cautions must first be noted. (1) The principle here given should not be confounded with any later generalizations affirming the uniformity of causation or that "every change must have a cause." All such generalizations give us highly complex products of thinking; the process through which these products have been gained—whether by experience or some mysterious intuitional way—still remains a matter of earnest philosophic dispute. We make here no assumptions; we affirm no postulates of inexplicable *a priori* origin. We seek solely to show *the nature of thinking* by reducing all its varied and complex modes to one elementary form of action. Only thus can the nature of anything be scientifically known.

(2) While all thinking consists in a relating of cause and effect, this relating is often, of course, very crude and faulty. We are continually assuming causes that are not causes and setting effects in false relations; it is the chief office of reasoned or inductive experience to correct these errors. But, while our beliefs are thus continually changing, the nature of the thinking process remains always the same. The process may be carried out to different degrees of perfection, but it must always be essentially a relating of cause and effect.

If the doctrine of this essay can be established, the two chief objects of philosophy are evidently gained. The first object is a *principle of unity.* After that philosophy has always striven and been always baffled. The intuitionalist finds himself confronted by a host of inexplicable intuitions, bearing no mark of kinship save the mystery of their origin. The empiricist reduces all to the unity of experience, but that is very plainly a merely verbal unity; our experience is but the sum total of our mental states, and for this vast aggregate empiricism furnishes no unifying principle. The Post-Kantian philosophy of Germany came nearer to the truth than either; and yet it only reached at last the altogether paradoxical unity of contradictions. But we have here all thought reduced to the unity of a simple and thoroughly rational process.

The second object of philosophy has been to find *a final criterion of truth.* Since Kant the only criterion much insisted on has been merely subjective, relative to the mental organization of human beings. That of course leaves the question always open, whether there may not be other and higher kinds of thinking freed from the axiomatic necessities imposed upon us by the peculiar structure of the human intellect. Kant was always harassing himself by some such question about a higher or "Noumenal" kind of knowledge different from that merely "Phenomenal" kind to which the human mind was confined; and every one knows what a part this harassment has ever since played in philosophy. But, if the doctrine of this essay can be established, all this vanishes like mist. If the very nature of thinking consists in a relating of cause and effect, then all thinking of all possible orders of intelligences must conform to this nature. A process or activity—higher or lower—which does not conform to it, is not thinking; the products of such a process are not knowledge; the predicates "true" and "false" can no more be applied to them than to sticks or stones. In a word, thinking, although a process having infinite degrees of perfection, is in its nature essentially one. It is absurd to inquire whether there may not be some other kind of thinking *besides thinking.*

We begin now our examination of the different processes of thought. The most rudimentary of these is that mental action which we describe as *self-consciousness.* All knowledge begins, either explicitly or implicitly, with the affirmation: I think. But this affirmation shows itself, upon the slightest reflection, as a relating of cause and effect. Every act of self-consciousness is a synthesis of these two ever-present elements: the I conceived as the, at least, partial cause of its own thought—the one and permanent cause of the present mental state, of other past states, and potentially of other states still future. You cannot take away either of these elements without mutilating and destroying the act of self-consciousness.

Very simple this seems, and yet to an ignoring of it some of the most fatal metaphysical errors have been directly due. First and most important of these errors is Hume's doctrine of the mind as merely a series of conscious states.

It is admitted upon all sides that the testimony of consciousness is here final; if its testimony in regard to our own thoughts is rejected, all possibility of knowing anything is at an end. The only question is: To what does self-consciousness testify? Hume and his followers say: Solely to a series of conscious states. But that is a phrase absolutely without meaning, except as we refer this series of conscious states to some permanent identity that is conscious of them. The two elements—the effect and its cause, the conscious state and the one conscious of it—are so indissolubly united that we are unable, not merely to think, but even to express the one without affirming the other. In a word, the testimony of consciousness, according to Hume's version of it, is utterly worthless, for the simple reason that it is entirely unintelligible and self-contradictory.

J. S. Mill saw this with sufficient clearness to confess that Hume's doctrine "involves a paradox"; and that "it cannot be expressed in any terms which do not deny its truth." He attempts, indeed, to break the force of his admission by suggesting that we are here in the presence of "an ultimate and inexplicable fact." But that is mere evasion. The question here is not concerning the explanation of a fact, but concerning the meaning of testimony. And very plainly testimony which is incomprehensible, which cannot be expressed save in self-contradictory terms, is evidence of nothing save its own worthlessness. Hume and his followers, then, virtually annul the testimony of consciousness by eliminating from it all that gives it intelligible meaning.

Of similar import is Kant's doctrine. All his argumentation in regard to this matter revolves around the conception of the soul as substance. But the category of substance and accident is a derivative one, the result of a complex process hereafter to be described; and it is easy enough for Kant to show that the simple act of self-consciousness does not affirm self under any such derivative and complex conception as this. Hence his thoroughly agnostic conclusion that the self is not given in self-consciousness, is only assumed as the ideal object of a "rational faith." All these agnostic perplexities vanish instantly before the doctrine of this essay. Self-consciousness is a relating of cause and effect. It relates our mental states not as qualities to a substance, but as effects to their one and permanent cause—as thought to a thinker. This synthesis of thought and thinker can never be dissolved. Whoever attempts to dissolve it will only take all meaning out of, and so virtually annul, the testimony of consciousness.

Consider now the doctrine of Fichte, in whose system the whole Post-Kantian philosophy is germinally infolded. Fichte's doctrine is the precise antithesis to that of Hume; the initial error of each is complementary to that of the other. Hume saw in self-consciousness only an affirmation of successive mental states. Fichte, upon the other hand, lays stress solely upon the affirmation of self. As the starting-point for his constructions he takes the proposition that "the fundamental activity of all consciousness is the affirmation of the self by the Ego." But that is as one sided and misleading as the counter-statement of Hume. Consciousness does not affirm self in the Fichtean sense—that is, absolutely; nor does it affirm the successive mental states in Hume's sense—that is, absolutely. Thought cannot be known except as related to its cause, the thinker; nor can the thinker be known except as related to his effects or thoughts. No knowledge—no intelligible meaning even—emerges until we put together those two elements which, kept apart, are both equally unknown and unknowable.

Does the criticism seem too minute? But just here, in Fichte's exposition of self-consciousness, was generated that doctrine of absolute identity that so long ruled and finally ruined the Post-Kantian philosophy of Germany. Self, according to Fichte, affirms itself; is at once subject and object; "in the absolute identity of subject and object consists the very nature of consciousness" (*Werke*, ii, 442). But this identity, so far from being absolute, is entirely dependent upon a loose, vague form of speech. Self affirming self is not a perfect but a fatally mutilated description of self-consciousness. What self-consciousness really affirms is a relation existing between conscious thought and its cause. A trivial distinction? And yet this initial error, seemingly so slight, vitiated the whole course of what, in many respects, was the most splendid speculative movement of modern times.

We have, then, not merely established our principle so far as self-consciousness is concerned. That was, comparatively, an easy task. But the principle has also been shown, I think, as the only true starting-point of philosophy. The one-sidedness and the conflicts of philosophic systems are grounded in the failure to recognize that every process of thought must be fundamentally a relating of cause and effect.

## CHAPTER II.

### *Perception.*

My conscious experience, then, is primarily presented before me as a succession of mental states of which I am, partially at least, the cause. But between these states there is a marked difference. Of those called imaginative, I am conscious as almost entirely the effects of my own activity; although even here I only put together material furnished from other sources. In the recollective states my consciousness of productive or controlling power is still less; in the perceptive states it sinks to its minimum. Around these last the disputes and divisions of philosophy have always centred; and they therefore demand a special consideration.

Although in perception my own causal activity is at its minimum, it is still always present and indispensable. Without some conscious putting forth of mental effort there is no perception. When the mind is attending to something else, the most vivid phenomena may pass by without being perceived. But in every perceptive thought there is an element of which I am conscious as being beyond my control—a regular recurrence of the parts, a fixed order of the whole which no mental effort of mine is able to change. Every perception contains an element that I relate to myself as cause; but also a much larger element that I cannot thus relate. But this also, by the very nature of thought, must be related to a cause or causes. And so instantaneously with the first dawn of consciousness I gain the conception of an external world—the sum-total of the causes producing effects of which I am conscious, but which I cannot control.

The exposition is summary; and a suspicion may thus be excited that it glides over the real difficulties of the question without solving them. That it does not may best be shown by comparison with other philosophic systems.

*First:* Consider the *Philosophy of Common Sense*, declaring perception to be an ultimate, inexplicable fact admitting of no analysis. But that doctrine is merely the last refuge of distressed philosophers. It has absolutely nothing in its favor except that the perceptive problem has not yet been solved. By what right does any one pronounce perception a simple, indecomposable act, defying all analysis, when upon its very surface it appears as complex in the highest degree? There is, first, the idea of a perceiving mind, then of a peculiar mode and measure of the mind's activity, then of an object perceived—and these three interacting in an endless variety of subtile implications. A sensation, by itself, is an exceedingly complicated process, a chain of movements of which we only know a link here and there, while the rest are secluded in the deepest darkness. But a perception is the resultant of many different sensations modifying each other, and all modified by the almost automatic action of the mind. All this complexity is not made simple merely because we can express it by the simple word "perceive."

A peculiar form of the Common-Sense philosophy is the doctrine of Hamilton, and perhaps of Reid, which attempts to prove the reality of objective existence from the testimony of consciousness. That seems to me specially objectionable. The office of consciousness is to testify to inner phenomena; when its authority is stretched over the whole outer universe, it ceases to be a guarantee for anything, either within or without. The authority of consciousness thus impaired, philosophy has no starting-point of certainty, and can make no progress. Nor is anything really gained toward proving objective existence. To say that I am conscious of the existence of the object is merely to say that I *know* it exists. We have only the old argument, or rather assertion, of the common-sense philosopher put in a new and more objectionable form.

*Second: Hypothetic Dualism*, as it has been called since Hamilton's day. This, the generally accepted doctrine of philosophic thinkers in all ages, I characterize as a crude and provisional statement of the truth. Part of that crudeness has already passed away. We hear little more of the representative images that once played so great a part in philosophy. Instead, the antithetical elements in perception are quite generally expressed in terms of cause and effect.

But a more serious defect still clings to this doctrine. It rests the reality of the sensible world upon some intuitive or instinctive inference that the mind is compelled to make from the effects produced upon it. I object to this on two grounds. First, to the hypothesis of intuitions therein contained. One of the chief objects of this essay is to do away with that motley host of intuitions—mathematical, physical, and moral—that have been so arbitrarily assumed in philosophy; or rather to explain them—in the scientific sense of explanation—by reducing them to the action of a common principle; in other words, to show them not as mere instincts mysteriously implanted within us, but as necessarily resulting from the very nature of thought as a relating of cause and effect. And so in the present case, instead of regarding my belief in objective existence as merely one in an incongruous host of inexplicable instincts, I look upon it as a postulate necessitated by the very nature of thought.

Secondly, I object to considering the belief in objective existence as an inference. An inference implies succession of ideas; one or more thoughts being present, from them I infer something consequent. But this is impossible in the present case; for, from the very nature of the thinking process, the effects produced upon me only become thoughts by being related to their cause. Instead of the cause being an inference from the effect, both are given together in the first flash of real thinking; each is the necessary complement of the other in that indissoluble synthesis which alone constitutes a perfect thought.

Let this last distinction be adhered to as something supremely essential. We must fully realize that the uncertainty of mere inference is something very different from that absolute certainty and that perfect fusion of elements which are shown in perception. It is this aspect of certainty and complete fusion which has induced some to describe perception as an ultimate fact defying all analysis. But we have now analyzed it.

*Thirdly: Subjective Idealism.*—This is rather a philosophic enigma to be solved than a doctrine to be rejected. No one really believes a doctrine so paradoxical. And yet philosophy—much to its disgrace—has never been able to precisely point out the fallacy upon which the paradox rests; has contented itself, for the most part, with sneers and assertions. But from our present point of view the enigma is readily solved.

The root of the paradox lies in an attempt to philosophize over mere figures of speech—purely physical expressions adopted by common language as a crude description of mental phenomena. In this loose, figurative way we distinguish between the internal and the external, as if self was a mystic sort of vessel within which are thoughts and without are things. Starting from this, the subjective idealist bewilders himself over the problem: how to pass from that which is within to that which is without. But such terms as internal and external, within and without, when applied to mental phenomena, have no significance for philosophy. They are purely spatial terms, strictly applicable only to physical things; and, however useful in common speech, whenever we apply them with literal exactitude to thoughts, and attempt to philosophize over them, we fall, of course, into bewilderment and paradox. True philosophy will refuse to thus bewilder itself with figures of speech. It will discuss the problem of thought only in the terms prescribed by the very nature of thought—terms of cause and effect. Thus strictly stated, the problem becomes a very simple one. Ideas, mental states, are, *by themselves*, utterly unthinkable; they become objects of knowledge, or even of thought, only by being put into causal relations with something else. The true antithesis—not that of internal and external, but of ideas and something related to them as their producing cause—is necessitated by the very nature of thought.

But the subjective idealist may object that he does not deny the causality; he merely affirms that the ideas have no cause but self—there is nothing but the thinker and his thought. But this is really but a bewildered and roundabout way of annulling the testimony of self-consciousness. We have the causality, as we have seen, given by the very nature of thought. The special purpose of self-consciousness is to *separate* from this causality the self as partial cause and to affirm its limitations. To break down these limits, to make self inclusive of all causality—is not that evidently to annul the testimony of self-consciousness, the very object of which is to establish this line of separation?

Through this we see the real character of subjective idealism. It is a volatile and elusive form of speculation that will never assume any really definite shape except to him who recognizes it as a mystified form of materialism. Both start from a common error, the effacing of the distinction that self-consciousness establishes between what is produced and what is not produced by self; both thus reach a common conclusion, that all is produced by a homogeneous causality. The only difference between them is that one calls this cause matter, the other calls it mind. But this for them is a difference in sound, not in sense. Both, by contradicting self-consciousness, have taken away all possible ground of distinction between mind and matter.

*Fourthly: Objective Idealism.*—We have found three certainties attested by the conjoint action of self-consciousness and the nature of thought: First, ideas or mental states; second, self as the partial cause of them; third, a not-self or objective causality. To deny, or even to doubt, these certainties is absolutely impossible: for denying or doubting is a process of conscious thinking, and every process of conscious thinking, when fully unfolded, has been seen to involve in its very nature these three affirmations. The negation of them means the cessation of thought. Since, now, objective idealism denies neither of these three primary affirmations, it is but a comparatively harmless and inoffensive kind of skepticism. In fact, it is hardly skepticism at all in any practical sense, but merely an attempt to explain the relation between the objective causality and our mental states. Its vice is that it is mere dogmatism; an attempt to forestall the work of scientific experience, to put *a priori* speculation in the place of induction.

The explanation thus attained is well known. It assumes, first, that all causal action proceeds from one Infinite Being; secondly, that all perceptions are produced by this Infinite Cause acting directly upon the finite mind without the intervention of any mediate agencies. All, therefore, that seems to intervene between this Cause and my perceptive states—that is, the whole mechanism of heaven and earth—is mere dream and illusion. But plainly this is a very futile kind of explanation. It has, first, no ground in reason; if there is an objective causality capable of thus acting directly upon finite thought, it is impossible to conceive why it should not produce other effects quite independent of the perceiving mind—other action more permanent and orderly than these fugitive impressions that come and go before our consciousness. Secondly, it explains nothing; it leaves all the facts—especially of the historic and geologic past—in a far deeper mystery than before. It is, in fine, an explanation founded upon the most violent assumptions, and in itself far more inexplicable than that which it pretends to explain.

Against all this, objective idealism has but one argument. We can know, it asserts, nothing but the effects directly produced upon the mind; we are conscious only of sensations, mental impressions; bodies or substances from which these effects are supposed to proceed are but figments which the mind invents to give unity to its perceptions; even if such substances really existed, we have no means of knowing anything about them. Such, in brief, is Berkeley's argument, so often declared invincible even by those who reject its conclusion. Nor, indeed, can it be answered save through the doctrine of this essay.

That answer is now evident. Thought is a synthesis of cause and effect. It is not possible for reason to annul this synthesis so as to contemplate or to gain an independent knowledge of the effect by itself or the cause by itself. Is it not apparent—despite Berkeley's assertion—that I have no knowledge of mental effects, impressions, or sensations by themselves? I have, indeed, some indistinct glimpse of a physical process of effectuation leading from the object into the bodily organism. But at the very point where the physical process is transformed into a mental effect it entirely eludes me. The process passes into the deepest darkness. It emerges again into the light of consciousness as an idea, a perception. But *now the idea of an effect produced is inseparably conjoined—fused with the idea of a producing cause.*

No effect, then, can become an object of knowledge, or even of thought, save as related to some cause, and conversely no cause, save as related to its effects. With this we leave the Berkeleian argument, that sole support of the thesis of objective idealism. One matter remains to be noted.

*The Progress of Experience.* — Our first crude perceptions naturally present objective causality to us as a vast concourse of things or substances. Our sensations of color, figure, resistance, etc., are given to us in fixed and persistent groups; and each of these groups of effects, actual and potential, is naturally related by us to one permanent cause. But this first crude view of objective existence has been changed by the progress of scientific experience, as we shall see hereafter. For the present let us remember three things: 1. These changes, although having an idealistic drift, do not support the extreme conclusions of idealism. 2. They have been established by strict processes of inductive proof, not by *a priori* speculations after the fashion of the idealist. 3. However much our view of objective existence may be modified, the fundamental principle of thinking is never changed. There can be no thinking where there is no relating of cause and effect.

The foregoing criticism of the different theories of perception has, of course, been very fragmentary and imperfect. But enough has been done, I trust, to establish our principle, and to show it as the only possible pathway out of the perplexities and endless disputes that have heretofore gathered around the problem of perception.

## CHAPTER III.

### *Classification.*

The whole subject of classification has been so confused by one-sided systems of thought that it is necessary to begin with a brief criticism of the different tendencies of logical speculation.

*First, Ancient Realism.*—It is the fashion of modern thought to dismiss this with disdain. But disdain is not the method of genuine philosophy, especially when it deals with natural tendencies of the human spirit that have crystallized into great systems of thought. It is pure folly to wave aside Realism as a mere vagary of the middle ages. It was the ruling impulse in all ancient philosophy, Greek, Roman, or Oriental. Aristotle, although he wages war against the mere poetry of the Platonic realism, is himself a thorough realist, especially in his physical inquiries. But why speak of the ancients? Realism, although no longer formally defended, is just as pervasive in our modern thought.

The *origin* of this wide-spread realistic tendency is readily apparent from our present point of view. I find many different bodies or substances affecting me in precisely similar ways—producing precisely similar effects or sensations of redness, roundness, solidity, etc. It follows, from what we have seen to be the very nature of the thinking process, that this similarity of effects can only be thought by being related to some producing cause. And the first crude efforts of the mind to express this causality give rise to the conception of *qualities* inherent in substances. And, when a certain set or fixed grouping of qualities is noticed as always present in a number of objects, there arises the further conception of the specific, the generic force, or, in realistic terms, of the Universal.

Scientific experience has long since passed beyond these first crude conclusions. We no longer speak of occult qualities, of universals inherent in bodies. Still science is perfectly true—must be true from the very nature of thinking—to the principle from which Realism started. We cannot think in any exact manner of the uniformities of effect presented before us except by relating them to their producing causes; we speak, indeed, not of occult qualities, but of laws, forces, Nature; but we can never get beyond that necessity which demands in every thought some synthesis of cause and effect.

The *vice* of Realism is now also apparent. It assumed that these first hasty generalizations of experience were final. It conceived mere words as actual existences, and attempted to explain from them the phenomena of the Universe. We fall into the same error if we think, as so many do, of "laws" or "natural forces" as anything more than generalized expressions or formulas of causality. For herein is the vice of all Realism, ancient or modern; the arrest of thought upon a mere word or formula; the refusal to seek further and in a wider range of experience for that causality of which the given word or formula is but a provisional expression.

*Second, Nominalism.*—The Nominalists have been perfectly successful in their attack upon Realism—in brushing aside that web of dialectical subtilities which crude, confused thought is so apt to spin. But beyond this purely critical function they have accomplished nothing; their doctrine has only negative merits to commend it.

Everything in Nominalism hinges upon the idea of conceivability; and this ambiguous word is always used in the narrow sense of what can be pictured before the imagination. Berkeley's whole polemic against general notions revolves around this fallacy. I can frame, he incessantly argues, the idea of an individual object—a man, for instance; but I cannot form the idea of man in general; I must make it of a particular color, size, etc.; and so the generality of the conception vanishes. Hamilton seemed at times aware of the fallacy, and yet built upon it his Philosophy of the Conditioned. Spencer has reared a still vaster structure upon the same fragile basis.

But not even from the most one-sided materialistic standpoint can this view be vindicated. Even in an external perception, only the visual elements can be pictured; what comes through touch, hearing, or any sense but sight, is absolutely unpicturable. The Nominalistic argument, then, does not apply even to the whole sensible world, but only to the, by itself, phantom-world of sight.

Again: Berkeley argues upon the same ground that we cannot form the abstract idea of motion apart from the idea of some moving body. But not even instantaneous photography—much less the faint picturing power of phantasy—can picture a moving body; it can only give the attitude of movement, and from that the mind infers that the body is moving. According to the test of picturability, the idea of a moving body is no more possible than the idea of motion.

A true idea, then, even of an individual body, is essentially *unpicturable*. Only a small part of it—the visual element in the perception—can be dimly portrayed by the imagination: and that part is merely a sign to call up the complete idea. And yet Nominalism insists that general ideas are impossible, because they are unpicturable.

Dismissing, then, these disputes, we have now to determine the nature of the classifying process. The key to the problem I find in the distinction between the denotation and connotation of general terms. That distinction has, of course, been recognized by all logicians, Nominalistic or otherwise; but they have used it merely as a logical plaything, without any suspicion of its real value as disclosing the inmost nature of all concepts. Let us see, now, how the denotation and the connotation of general terms are related to each other.

First, the denotation is *indefinite;* it may include very many individual objects, or very few, or even none at all, as in the case of imaginary concepts—centaurs or other fabulous animals, for instance. It is also *variable* by circumstances; the number of individuals included in a class is always changing from time to time;

it is an undefined multitude in continual flux. On the other hand, the connotation is always definite and invariable. A concept may connote but a single attribute, and that, of course, is constant; in the case of Natural Kinds an exhaustless series of qualities is connoted, but still the connotation is fixed and uniform for every possible member of the class. Secondly, the denotation points to a *multiplicity*, a mere aggregate of unknown individuals. The connotation, on the contrary, points to unity; this, as a matter of course, when only a single quality is connoted; and in the case of Natural Kinds the different attributes are always conceived as one set—a co-ordinated system—a unity so definitely fixed by Nature that from the presence of some of its parts we can infallibly infer the rest. Thirdly, the denotation is merely *potential*. No general term, by itself, can actually denote any particular object; it can only do so by the help of the article or other demonstrative words, or through its position in the sentence. The connotation, on the contrary, is actual. The word Man, for instance, in and by itself does actually connote certain attributes; it *may* denote or point out certain individual objects by the help of other words.

Fourthly, and most important of all, the denotation is always *conditioned* by the connotation. Whether a particular object can be designated by a given general term depends entirely upon what attributes are connoted by that term. The denotation refers to a possible collection of resembling objects; the connotation specifies that upon which the classification depends. The one points to individuals grouped; the other to that which groups them. The one designates potentially resembling objects; the other that which causes their resemblance.

Thus the real nature of the concept is disclosed with surprising clearness. Its double meaning is a synthesis of two elements related to each other as cause and effect. The fourth distinction, above, directly demonstrates this. The other three corroborate it, since they show in the denotation the precise characteristics of an effect—change, multiplicity, and potentiality; and in the connotation precisely the characteristics of a cause—permanence, unity, and independence.

Only two brief suggestions can here be given concerning the application of this doctrine to the logical controversies so long pending. First, Nominalism is explained as an undue emphasis laid upon one of the two elements in every general idea, and an ignoring, so far as possible, of the other. The Nominalist insists that a concept is merely a name for a collection of resembling objects. But it is more than that. It points on the one side to resembling objects, but on the other to that which constitutes or causes their resemblance. A collection of resembling objects is, by itself, an utterly meaningless phrase, since every object in the universe resembles every other object in some respects and differs in others. No real meaning emerges until we put together the two elements, in the synthesis of which every general idea consists.

Second, *Conceptualism* lays stress upon the causal element in the concept. It denies the Nominalistic assertion that a concept is merely a name for a collection of objects—a collection which, by itself, is but a vague potentiality, having no actual existence either in nature or in the mind. So far it is plainly right. But Conceptualism, on its own part, has seen in the concept nothing but a bundle of attributes, or a relation of resemblance. But this definition is as vague and unsatisfactory as that of the Nominalist; just as the collection of objects was, by itself, inconceivable, so a relation of resemblance is inconceivable independently of the objects related. The universal law of thought governs here also.

The source of all this confusion and controversy has been the double meaning of the concept. But we have now put these two meanings together in the exact and definite relation of cause and effect: the one determining, the other determined; each supplying the defects and counteracting the vagueness of the other. Through this synthesis we preserve the unity and the distinctness which undoubtedly belong to every general idea, despite its double meaning.

Possibly this criticism of other speculations has been too concise to be fully intelligible. But at least the general doctrine of the essay, it seems to me, has been established. Every concept is shown, through its double import, to be a synthesis of cause and effect. Every common word—the whole structure of language—discloses that process in which the very nature of thinking consists.

## CHAPTER IV.

### *Reasoning.*

The question here of the deepest philosophic interest is: How do we attain to valid universal propositions? And that, in my opinion, is equivalent to the question, What is Induction?

From many repetitions of an event the *expectation* naturally arises that the event will recur under similar circumstances. Such an expectation is sufficient for the savage and the very ignorant; they rarely, if ever, form really universal judgments; they, indeed, expect things to happen in a certain order, but an order liable at any moment to interruption. But a really universal judgment does not merely assert that certain phenomena have co-existed, and probably will again; it asserts the co-existence as something that must be, as necessitated, and therefore as demanding a cause.

Many repetitions of an experience, then, are not sufficient to form, by themselves, an induction even of the most empirical kind. Thought, impelled by what we have seen to be its very nature, relates this oft-observed co-existence to some cause; then, and then only, do we have a really universal judgment affirming an absolutely invariable co-existence of the phenomena. The most empirical induction, then, as well as the most scientific, contains something more than a mere observation of particulars. Both assert causes for the observed co-existences. But empiricism assumes its causes; true scientific induction *proves* them by strict methods.

It would be absurd to attempt any presentation here of the many different and complex methods by which scientific induction transforms an oft-observed coincidence into a law. That by itself would require a volume. I can only briefly notice what is not merely the most perfect method, but also the type to which all the other methods approach. That method is the resolution of the given universal proposition into a simpler and more general proposition. In other words, the assumed principle is shown to depend upon some wider principle. And this process, perhaps, is repeated: and so on, until we attain a proposition of the utmost universality and simplicity conceivable. It is at least the dream of Science that it will finally attain to one universal proposition or law, under which all the minor laws of Nature may be subsumed and by it explained.

Three results are insured through this subsumption of the minor laws under more general ones: 1. A wider interdependence of phenomena is established. Many minor laws, complex and proportionately narrow, are linked into one of a far vaster range; this into others; and thus the interdependence of all becomes so firmly assured that we are entitled to say of each special law or proposition: This must be so long as the present order of the Universe continues. 2. Exceptions are got rid of. For instance, the empirical rule obtained by mere observation that arsenic kills is liable to exceptions; but these are explained by the principle that explains the rule. It is so almost everywhere in physical studies. 3. Most important of all, qualitative laws are converted into quantitative ones. It is the grandest characteristic of Nature—one to which we owe almost all our real knowledge of her secrets—that her deepest laws are mathematical. In chemistry especially the most intricate qualitative differences have almost magically been resolved into simple equations of quantity. Induction is thus helped in two ways: First, mathematical reasoning is far easier and less fallible than that of ordinary logic. Second, uniformities of quantity—of weight or distance—can be measured with the utmost minuteness; so that a single observation agreeing with a mathematical computation is of far more value than a hundred co-existences of mere quality.

Such, then, seems to me the inductive method, so far as so complex a theme can be outlined upon a page. The formation of a really universal proposition or law is like the building of an arch. On the one side is the repeated observation of particulars; but this by itself can give but the frail security of a general rule. On the other side is the reasoning through which the given proposition or law is connected with wider and simpler laws—a deductive process by itself most delusive. The one process shows a uniform co-existence; the other proves what this co-existence depends upon. Each apart is very weak; together they strengthen and support each other. The universal proposition or law is, of course, the key-stone of the arch. Such a proposition, built upon either process alone, would be like a stone in the air.

But it will be instantly objected that countless repetitions of experience, without exception, are sufficient by themselves to establish universal judgments. Is not the proposition, for instance, that all men are mortal, sufficiently established by the uniform experience of mankind? Does it gain any additional certainty by our knowledge of the conditions upon which the constant co-existence between humanity and mortality depends? Is it not equally certain to the savage who knows nothing of the necessitating causes? But remember that the savage ascribes it to *some cause*, if no other than arbitrary and supernatural agencies. And since he thus ascribes it to a variable cause, a shade of doubt steals over his belief in it as a fact. That all men are mortal, was not, for most people three centuries ago, a universal proposition in the scientific sense of the term. It was merely a general rule with well-accredited exceptions.

Science, also, has its empirical laws—uniformities of co-existence for which as yet no cause has been discovered. But no one doubts that there is a cause. And, until such a cause is demonstrated, no scientific mind would be surprised to find the empirical law failing him, even at the most critical juncture.

The question has been often and hopelessly debated among logicians why one or two repetitions of an observation are often of more value to the scientist than hundreds under other circumstances. That is readily explained by our doctrine of induction as the union of two processes, each strengthening and supporting the other. If we have become satisfied, deductively, that a certain coincidence *ought* to occur, we are satisfied with a few experimental proofs that it *does* occur; especially is this the case, for reasons given a moment ago, if the coincidence is one capable of exact quantitative measurement. But so far as the causes of the coincidence remain unknown, so much must the repetitions of experience be multiplied; and after all we have but an empirical law.

The fundamental principle of this essay, then, seems to me fully demonstrated in regard to that kind of thinking which is at once the most elaborate, the most splendid in its results, and the most difficult to understand—Induction. For, plainly, in this dual activity, Observation gives us *effects*, the relations or uniform co-existences of phenomena; the counter-process deals with the *cause* of these co-existences. The law, then, which prevails in the simplest processes of thought prevails in the highest and most complicated: Induction is a synthesis of cause and effect.

Let us now briefly note the importance of this solution for the philosophy of science. The philosophic movement has heretofore been governed by one or the other of two equally one-sided tendencies of thought. On the one part was an empirical tendency laying all stress upon effects, and ignoring, so far as possible, their causes, finding in the Universe nothing but co-existences of phenomena; on the other part, an idealistic tendency with an intense zeal for causes, Universals, Laws; and a corresponding contempt for the observation of effects. And, if space permitted, it could be readily shown how the prevalence of one or the other of these tendencies brought to an untimely end the scientific movement in Greece, India, Alexandria, and in the Middle Ages. But modern science, with a practical, common-sense philosophy of its own, has always avoided both the empirical and the idealistic error, and fused together the good in each. Devoted to experience, it has not confined itself to a merely empirical tabulation of particulars; seeking unweariedly for the great laws upon which all phenomena depend, it has distrusted all deduction that outran observation and experiment. But science has done this instinctively, or rather through that practical common sense which always shuns extremes and one-sidedness, even when it does not understand them. So true is this that no theoretic exposition of the scientific method has heretofore been made that has proved generally acceptable to scientific workers. The value of the present exposition, therefore, is not merely that it answers a much-vexed question in logic, but that it presents the scientific method as a virtual embodiment of the true philosophy—a practical conciliation of the opposing, one-sided tendencies of speculative thought.

*Mathematical Principles: Arithmetic.*—How are universal judgments of this kind attained? Two things seem needful to be considered: 1. The starting-point of arithmetic is the formation of the general idea of units or ones. That idea of the unit is the most abstract of all concepts—that is, the simplest in its connotation and the most universal in its denotation. But, this idea having been gained, the rest of arithmetic is but a process of counting—that is, of noting the results attained by variously aggregating objects conceived as units and giving names to these results.

The different arithmetical rules are evidently but abbreviated processes of counting.

2. But now comes that problem which, in some shape or other, has caused so much perplexity in modern logic. This process of aggregating units and of noting results is a purely empirical one. How, then, do we attain to that universality and necessity which belong so pre-eminently to mathematical science? How can the results of a single process of counting be absolutely true for the universe and for eternity? I answer: That by hypothesis we have *excluded all possible cause of difference.* The units are invariable; the process of counting one by one is invariable; but, since all possible causes of a different result are excluded, a different result is absolutely unthinkable, from the very nature of thinking. A somewhat similar certainty is obtained through experiment, in chemistry for instance; but since, then, the exclusion of all possible causes of difference is not so absolutely assured, the necessity falls short of mathematical science.

*Geometry.*—The same solution is applicable to the disputes about geometrical "intuitions." Take one of the most familiar questions: How can I obtain, except intuitionally, the axiom that two straight lines cannot enclose a space? We have here the conception of two straight lines starting from one point; it is required to show that, even if prolonged to infinity, they can never touch again. Bare empirical inspection gives the rule that increase of prolongation produces or is the cause of increase of separation. But how do I know that this may not be changed somewhere in infinity, and the lines begin to approach each other? Simply because by hypothesis I have excluded all possible causes of change; and, therefore, from the very nature of thinking, the effect will continue unchanged through all eternity. Similarly with the other axioms. In fact, all geometry—if I may venture to define it in a single sentence—is but a laborious and infinitely skilful deduction of certain results that must follow from a continuous superimposition of equal lines, the absolute necessity of the conclusions being assured, because at every minute step we have excluded all possible causes of difference under infinite circumstances.

I utterly reject, then, the idealistic explanation of axioms as intuitions forced upon us by some mysterious and arbitrary compulsion. I also reject all empirical explanations like that so laboriously argued by Mill—that vision, either actual or *imaginary*, can explore infinite space and tell us what will happen at any point therein. Besides its inherent absurdity, this is contradicted by the fact that our belief in an axiom once understood is given us in a flash—not permitting of any such infinite scrutiny of space. This instantaneousness of belief is indeed the stronghold of the intuitional theory, but it is equally well explained by our own principle. We directly perceive the empirical fact; the absolute certainty of it is given us by the very nature of thought, and therefore instantaneously upon the bare condition of thinking about it. Whatever depends directly upon the nature of thinking demands no mediate process and no time.

*Intuitions.*—Let it be noted that this doctrine does not merely reduce all the so-called intuitions to one—that of cause and effect. That, by itself, would indeed be a service of value, since it would introduce into the intuitional philosophy unity instead of its present incoherence. But our doctrine goes much farther than this. It does not present the relation of cause and effect as something in which the mind is mysteriously—or intuitionally—compelled to believe, for that leaves always open the abyss of absolute skepticism—the question whether there may not be some other transcendent kind of intelligence not under this compulsion. We say simply that to think is to relate cause and effect; and there can be *no kind* of thinking that is not thinking.

## CHAPTER V.

### *Nature.*

What light now does the doctrine of this essay throw upon the principles underlying our present knowledge of Nature? The question can be answered here evidently only in the briefest, most fragmentary way.

*Atoms.*—Just here we encounter the shadows of a very ancient controversy. On the one side is the common theory of atoms; on the other the theory of Boscovich, Faraday, and a few other eminent men of science—that an atom is nothing more than a focus of converging forces. Let us remember that the work of science is here purely one of explanation. As we have seen at the close of Chapter II, the absolute certainty is that of Objective Causality; the task of reasoned or scientific experience is to explain, so far as possible, the character of that causality. The common theory affirms atoms or substances as at least a part of this causality; the other conceives the atom merely as an effect—a resultant of forces. The latter theory does not seem to me utterly incredible or as playing such havoc with reality as did the *a priori* speculations of the old objective idealism; but still the first, I think, gives the only satisfactory explanation of all the facts—especially those of time. We must regard the atom, not merely as an effect of forces, but as a permanent cause producing upon us in its aggregations the effect or sensation of extension.

Outside of this controversy the tendency of scientific experience is very clear. Science has left to the atom only its one fixed property of extension, its power of occupying space; to that extent it is an independent cause exerting a sensible effect. All else is being resolved into forms of motion. Qualitative relations are being transformed into quantitative ones, and, instead of occult qualities or potencies inherent in bodies, we have motions produced by forces.

*Forces.*—The full significance of this scientific revolution is being hidden from many minds by two causes. The first cause is a one-sided, empirical bent of mind, that eclipses the causal element in all thinking. Comte is the purest type of this tendency. Science for such thinkers is but a registry of observations concerning the successions and co-existences of phenomena. Forces, causes, are merely products of the irresistible tendency to personify "abstractions"; they are pure creations of the intellect, sometimes useful, perhaps, but utterly fictitious. I need not repeat against this the now familiar argument founded upon the nature of thought. I wish here only to note the cumulative force of that argument.

The scientific skeptic of an empirical bent uses this objection to abolish forces; he will have only moving bodies. But the idealistic skeptic comes with the same objection to annul the idea of bodies; he will have nothing but a perceiving mind and its states. And after him the absolute skeptic, with the same objection annulling mind as well as matter—leaving nothing but percipient states where nothing is perceived and there is no one to perceive it. But by the aid of a single argument we ascend step by step from this abyss. We regain, first, the idea of a percipient mind; then the idea of objective existence; then the scientific division between forces and their effects. In other words, the different forms of skepticism are absolutely interdependent, springing from a common cause. It is the failure to perceive this connection which gives to each form its attractiveness to particular orders of mind. No skeptic—especially the scientific one—wishes to accept all these forms of denial, and never really does; and still he *must*, if he carries his denial to its logical conclusions.

The second cause is a survival of mediæval realism. Through this tendency, as we have seen in Chapter III, the word "law" has come to play so misleading a part in modern thought. How many people, for instance, conceive of the heavenly motions as somehow produced by "the law of gravitation"? But this is scholastic realism—the arrest of thought by a word. A law is but a mathematical formula for uniform movements. The force or cause producing these movements—according to a rigid mathematical formula—is still to be sought.

But the most common and the most misleading form of scholastic realism in modern times is, essentially, a vague belief in occult qualities or mystic forces hidden within bodies, with this difference, however, from the mediæval form of the belief. The changes of a body are no longer conceived as produced by occult qualities resident within the body itself, but by *occult qualities resident in some other body* or *bodies*. The gravitating movements, for instance, of a body are conceived as produced not, as in the Middle Ages, by some occult quality of *weight* within the body, but by some occult quality of *attraction* inherent in other bodies. This modern form of realism is even more absurd than the ancient. Conceive all that it implies: First, that each atom acts not merely upon some other atom, but upon all the atoms of the universe; second, that these infinite activities of the atom go on absolutely unchanged either through vacant space or through the densest medium, no intervention of other bodies affecting the influence of gravitation; third, that each of these infinite activities of the atom is carried on according to a mathematical law, very simple, indeed, in its expression, but so infinitely intricate in its execution that the highest human art could not produce such a movement between even two bodies—that is, a movement each instant varying inversely to the square of the distance. What superstition of the Middle Ages, then, equals this of imagining within an atom an occult quality capable of producing an infinite number of such activities?

Such, then, are the two great errors now obscuring the clearness and accuracy of scientific conception. On the one side is the empirical tendency obscuring—so far as possible—all idea of causality, seeking to look upon effects as produced by nothing. On the other side is a scholastic realism wherein thought is arrested by abstract words; or, more definitely, a failure to see that all such terms as "laws," "forces," etc., are but provisional formulas expressing the action of Infinite Causality. True science steers between these rocks. It does not attempt the impossible task of conceiving motions without forces; nor, on the other hand, does it look upon its forces and laws as anything more than formulas—sufficient, indeed, for scientific purposes—but still merely formulating the action of a Causality that lies beyond the narrow bounds of physical research.

And in this shape physical science hands over the problem of the physical universe to philosophy: A vast complex of interconnected movements produced by a Cause acting according to mathematical formulas, very simple in idea, but infinitely intricate in execution.

*Antecedent and Consequent.*—Everything here starts from Hume's epoch-making paradox resolving all causation into mere uniform sequence between antecedent and consequent. Paradoxical and false as Hume's statement is, it yet contains an element of deep truth, endorsed by science and fully recognized by the doctrine of this essay.

Speaking with scientific exactitude, no two physical phenomena stand to each other as cause and effect, but only as two terms in a fixed series—as antecedent and consequent in a vast and intricate process of effectuation. Between the antecedent and consequent, obscure processes intervene, some of which we see clearly enough to make us suspect the existence of many more quite insensible to us. Even so seemingly simple an act as sensation we know to be wonderfully complex—determined not only by the external stimuli and subtle conditions of our own organism, but by the influences of other concurrent sensations, and even by inferences of reason. So everywhere we find not a cause, but a process—a dimly discerned series of effects, each term of which is interconnected with the rest.

The simplest of all such processes is that of motion imparted through mechanical impact. But even here the first body is but the medium of transmission; what it received, it imparts; and in this transmission the quantity of motion is exactly conserved without loss or gain. Only in a crude sense can the first body be called the cause of motion in the second; both are but terms in a never-ending series of movements. And so in all physical relations, the antecedent is but the medium through which motion is passed on to the next term in the series.

That is the truth in Hume's paradox. The false and paradoxical part arose from assuming that the doctrine of causation was thereby annulled. The true cause is not the invariable antecedent to a consequent, but that which causes their uniform and invariable connection. In the progress of induction, Causality does not vanish; we merely throw off our first crude conceptions of it. Its first aspect of multiplicity and variation gives way to an aspect of unity and permanence. All physical phenomena finally present themselves as a vast and infinitely intricate system of effects, related to a cause producing the fixed and absolute order of the parts.

Two cautions should be noted. First, the above is qualified by what was said at the beginning of the chapter concerning atoms. If the atom is to be regarded not merely as an effect of force, but as occupying a fixed extent of space, it is *to that extent* a true cause. Secondly, this doctrine involves no war against the usages of common language. We properly enough speak of an antecedent and a consequent, in a causally connected series, as cause and effect. Still no argumentation can break down the truth in Hume's doctrine. One physical event is not the cause, but the antecedent of another; and, the better we remember this, the clearer and truer will be our view of the physical universe.

## CHAPTER VI.

### *The Conscious Cause.*

Physical existence, then, is a vast series of interconnected effects, the more vivid terms in which appear as antecedents and consequents. Many, charmed by this induction, have endeavored to extend it also over the field of mental existence. Mental states, they argue, are nothing more than antecedents and consequents connected in a fixed, although dimly discerned, order. That evidently is to contradict the direct testimony of self-consciousness which exists, as we have seen, solely to affirm Self as the producing and controlling cause of its own activities. But those who have clung to this testimony of consciousness have done very little to weaken the array of argument upon the other side; they have been generally inclined to admit that the witness of self-consciousness and the inductions of experience directly contradict each other. Philosophy has failed to solve this seeming contradiction. And to this failure, more than to anything else, is probably due its present disgrace.

It may seem an absurd audacity to attempt to answer within these limits a host of arguments that have been regarded as virtually unanswerable even by most of those who have denied their conclusions. But the whole previous discussion is a preparation for this task. From our present point of view this seeming contradiction between self-consciousness and reason is readily solved. It seems to rest mainly upon four fallacies.

*First, The Fallacy of Inconceivability.*—"That the mind," says Sir William Hamilton, "should produce or originate its own states is inconceivable; and even to conceive the possibility of this inconceivable act we must suppose some cause by which the man is determined to exert it." But why inconceivable? Why cannot the mind rest in the conviction that itself has produced its own acts without supposing some cause for its own causality, and so on in infinite regress? The ground of the fallacy seems to be a vague generalization that reason demands a cause for everything. But the doctrine of this essay has dispelled that illusion. The office, nay, the very nature, of thought is to relate cause and effect. Looking upon the sum-total of existence, it asks what is cause and what is effect. Having discovered certain phenomena to be effects—mostly through the invariable uniformity of their sequences—it is entirely content to relate those effects to their cause. Having discovered a cause, it is equally content to relate that cause to its effects. In the physical field we indeed seek for the causes of *what are called causes*, for we have found them not to be real causes, but merely antecedents—terms in a series of connected effects. But to demand a cause for a true cause is to contradict the very nature of thought. It is the insanity of reason.

Jonathan Edwards was here more acute than his successors. He does not pronounce it utterly inconceivable that the Self should be the cause of its own volitions. But he adds that this may explain why the soul acts at all, but not why it acts in a particular manner. It is inconceivable to him " that the same cause in the same circumstances should produce different effects at different times." But this inconceivability belongs to the physical field; it is mere bias when carried over into the mental. It is indeed inconceivable that one physical antecedent under the same circumstances should be followed indifferently by one or the other of two consequents; that a billiard-ball, for instance, should, under the same circumstances, impart a variable quantity of motion to another ball. Why? Because, as we have seen in the previous chapter, the billiard-ball is only nominally a cause; it merely imparts what it has received; it is simply a medium into which a fixed quantity of motion is received and transmitted or else distributed among its own parts. But to carry this over into the mental field is to beg the whole question. It is to take for granted the very thing to be proved: that the conscious Self is not a true cause, but simply an effect of something beyond itself—a mere medium through which impulses pass as from one billiard-ball to another. And this assumption is made in blank contradiction of a self-consciousness testifying to all men and always that the Self *is* the cause of its own mental states.

Designedly I have placed this fallacy of inconceivability at the head of the list. It is the first, the most insidious, the one to which the necessitarian always retreats in every stress of argument. No progress whatsoever can be made in the discussion unless we understand the origin of this fallacy. It is a bias brought over from physical studies. Reason does not demand a cause for a cause, and so on in infinite regress. Nor does it demand that a cause under the same external conditions should always act in the same manner. That necessity does indeed belong to all physical antecedents, *as we have inductively learned.* But to impose it, without proof, upon our mental acts, is an absolute begging of the question.

*Second, The Fallacy of Motives.*—The necessitarian argument here is well known; we need only the answer, and to gain that answer we must thoroughly comprehend what a motive really is. A motive is an anticipation of pain or pleasure, forming an inducement to act. Whatever thus presents itself as pain or pleasure—even in the most ideal and distant anticipations of eternity—is a motive. Nor can it be denied that in the most of our actions we are governed—almost mechanically determined—by these motives. Since our mental life is carried on in a physical environment, we are for the most part creatures of habit and inclination. To that extent we act as other animals; we are moved by the strongest impulse, like billiard-balls.

But along with this ordinary action there always goes the testimony of self consciousness testifying to the Self as cause. Thus, I know that I have the power of controlling instead of being controlled. I can, if necessary, push entirely aside all considerations of pain or pleasure, even the most ideal and remote. In other words, I have the power of *acting solely according to my knowledge of what ought to be done.* This is freedom: the Self determining its own activities according to its knowledge of right and wrong.

But this knowledge, it will be objected, is the antecedent conditioning the act. No! I answer, evidently not, for in every moral action *this knowledge is always present*, whether I act according to it or not.

But, again urges the fatalist, I do not act according to this knowledge unless I wish or desire to; the wish or desire is the antecedent. (See Mill's "Examination of Hamilton's Philosophy," ii, 285, and "Logic," 524.) But this is merely a verbal artifice or bewilderment. A wish or a desire is an inchoate volition; it refers to certain conditions of constraint or inability. But in this case I know that I have the power, at least, to will according to my knowledge of right and wrong. To say, then, that I have not the power to will unless I wish to, is pure nonsense. It is merely to say that I have not the power to will unless I will.

I do not mean that these verbal artifices are designed. They are rather the spontaneous results of that feeling of inconceivability already described. The necessitarian carries over such a bias from the physical field that he can hardly help thinking that there *must* be some antecedent determining every activity even of a free cause. Hence he bewilders himself with a verbal artifice, in which the volition itself, under a different name, is made to play the *rôle* of antecedent to itself.

*Third, The Fallacy of Spontaneity.*—"It is impossible," says Hamilton, "to see how a cause undetermined by any motive can be a rational, moral, or accountable cause." "A motiveless act is, morally and rationally, worthless."

That proceeds from the assumption that there is no middle ground between action controlled by motives of pleasure or pain and action under the influence of unconscious spontaneity. But we have seen that there is such a middle ground, and that very much higher, morally, than either of them. The perfect type of moral freedom is in an act not done from considerations of pain or pleasure, or through unconscious spontaneity, but done solely because we knew that it ought to be done.

But is there, then, no freedom in a wrong act? Yes, to the extent that every such act is accompanied by a knowledge of what ought to be done and a consciousness of power to act according to that knowledge.

*Fourth, The Fallacy of Prediction.*—"The statistics of crime," asserts Mill, somewhat too vigorously, "show results that are as uniform, and may be as accurately foretold, as in any physical inquiries in which the effect depends upon a multiplicity of causes." I answer that these tables of crime are statistics of what *does* very largely depend upon physical causes or antecedents. The criminal classes are mostly composed of those in whom, through such purely physical influences as heredity and environment, the power of free moral activity has been reduced nearly to zero. True, except in cases of criminal insanity, the consciousness of this power is always present. But it is a power so rarely exercised as to form but a slight factor in the statistics of crime.

A similar answer applies to the argument that we can often roughly predict a man's conduct from our knowledge of his character or moral habits. Habit is truly said to be a second nature, often almost as fixed and rigid as a physical nature. It is not strange, then, that we can often predict conduct. But let us remember that distinction, the overlooking of which has heretofore so confused the question of moral freedom. Although our conduct is so generally governed by predispositions and other motivities acting in a purely mechanical way, still we are always conscious of a power to break loose from this constraint and to act solely from our knowledge of what ought to be done. That we so rarely exercise this power is a very poor reason for denying that we possess it.

These fallacies cleared away, the testimony of consciousness stands forth, evident and absolutely unimpeachable. Self-consciousness exists solely to affirm the self as cause. And, since a cause, therefore free.

*The Infinite Cause.*—That the First Cause of all things is free is now evident. For, if it were not free, it would be merely an effect for which thought, from its very nature, would still demand a cause. But the constant and reasoned experience of mankind has shown that this causality acts always according to fixed laws of mathematical exactitude. Therefore the Cause of all things is consciously intelligent, for it is demonstratively impossible for anything to act *freely* according to a fixed law without knowing the law according to which it acts.

The clearness of this demonstration may be obscured by a prepossession gained in the study of human life. We see the caprice and fickleness of human actions; we believe man to be free; and so we naturally come to confound the idea of freedom with that of mere spontaneity acting without reason, arbitrarily and at random. But the explanations of the present chapter ought to dispel that illusion. The appearance of chaos and arbitrariness in human actions is due to the *imperfect and partial* character of our freedom. In ordinary human life we are conscious of a free power, but rarely use it; our conduct is, for the most part, the product of complicated impulses, made still more complicated and much darker by this overshadowing sense of a freedom so rarely used. But *perfect* freedom would not have this appearance of arbitrariness, of mere blind unreasoning spontaneity. It would consist, as we have seen, in always acting according to a law of right, self-imposed indeed, but otherwise as rigid as the law of the heavenly movements. In other words, the essence of freedom is to act according to a self-imposed law. Therefore, the absolute order of the universe is necessarily involved in the perfect freedom and infinite intelligence of its Cause.

*Final Causes.*—While the doctrine of final causes has been and still is very useful in the practical culture of the religious emotions, its philosophic value is extremely limited. And that chiefly for two reasons: 1. The doctrine is wholly based upon reasoning from analogy—a reasoning logically defective and always perilous, especially when applied to subjects so disparate as the finite and the infinite. We have just seen how analogies from human life have served, perhaps more than anything else, to obscure the conception of Infinite Freedom as the cause of the absolute order of the universe. 2. It intensifies the wretched rivalry of Science and Religion. The aim of science is to demonstrate the reign of law, to evolve all phenomena from natural processes—exceedingly simple in idea although infinitely intricate in execution. To science, therefore, the doctrine of final causes is an unwelcome intrusion; it seems an attempt to substitute the theological method of analogy for the method of induction. Above all, it seems an insidious attempt to build a belief upon the failure rather than upon the successes of science.

But here is a principle that fully guarantees the conclusions toward which the doctrine of final causes has dubiously struggled. It is at the same time a principle in entire harmony with the spirit and expectations of science. The more that science succeeds in explaining the universe as a process carried on according to invariable law, the more perfect the demonstration of a First Cause absolute in freedom and infinite in intelligence.

## Chapter VII.

### *Comparative Philosophy.*

We have thus concluded our survey. Every process of thought from the lowest to the highest—every simple perception, or concept, or judgment, or act of reasoning, or so-called intuition—has been shown to be essentially a relating, in a more or less complicated form, of cause and effect. Thus our work might seem to be virtually ended. But it can be still further perfected by the aid of the historic method—that is, by a comparison of the different philosophic systems that have prevailed in the past.

The grand division of philosophic systems, as sensationalistic or idealistic, is well known. And we have already shown how this division grounds itself upon the relative stress put upon one or the other of the two antithetical elements of all thought, cause or effect. This difference of stress explains the philosophies of the past, their relative merits and defects, their constant conflicts and common failure.

The chief service of the sensationalistic philosophy has been its steady affirmation of experience as the sole source of knowledge. Its well-taught lesson to the world has been that we must begin with the study of effects; that all *a priori* generalization of causes is worse than useless. But, beyond this contribution to the scientific method, sensationalism has accomplished nothing. Lacking an insight into the nature of thought, it has seen in experience nothing but an automatic registry of sensations. Its sole principle of association cannot interpret anything beyond the psychology, so to speak, of animals; for, undoubtedly, the sensations of the animals are thus linked according to the laws of Hartley, Mill, and Bain. But only when these sensations are related as effects to these causes does real thought begin. Failing to grasp this distinction, sensationalism has interpreted the cerebration of the animal, but not the processes of real thinking.

The chief vice of idealism, on the other hand, has been its method—that of intuition and *a priori* generalization. Experience—not yet understood as the relating of all phenomena in a synthesis of cause and effect—seemed to give no guarantee for the most universal and necessary beliefs of mankind. Thus the idealist was driven to invent the intuitional method, a mysterious process by which the mind gained immediate and instinctive knowledge of what lay beyond experience. That method we now know to be an illusion. It contradicts the fundamental law that all knowledge is mediate, no effects being known save as they are related to causes, and no causes save through their effects. It renders impossible the unity which philosophy exists to seek. Once admit a source of knowledge beyond experience, and you have a mere chaos of instinctive beliefs to be multiplied at pleasure.

But, despite its method, idealism has been of the greatest service to human thought. It provided, at least, a temporary basis for the fundamental truths of religion, morality, art, and even mathematical science—truths which lie enfolded in the very nature of experience, but for which experience, imperfectly understood, seemed to furnish no assurance. To this pass, then, philosophy was driven. On the one side was a sensationalistic school standing by the true method, but one imperfectly understood, and therefore useless for the attainment of the highest truths. On the other, an idealistic school anticipating truth, but by a false method, or, more strictly, without any method at all. The explanation is the one-sidedness of both systems; their defects were mutually complementary, because each clung to an element in the dual process of thought which the other tended to ignore.

So far our comparison of philosophic systems has been merely in outline. But with Kant a great revolution began, that we must consider more in detail.

What was Kant's real contribution to philosophy? That question has been discussed for nearly a century; many different answers have been given, and still the question does not seem to be settled. This indefinableness of the movement seems to hint at a mere ferment of opinion, the natural outcome of a revolutionary age. But that the movement was something more than ferment is proved by its persistence; even now many are demanding that philosophy, after its long wanderings, should "go back to Kant." What, then, is the secret of this influence, so great and yet so difficult to define? I answer that Kant was the first to propound the true problem of philosophy. That problem is: The Nature of Thought.

Before Kant, philosophy had been chiefly an attempt to classify the products of thinking. But evidently all such classification could be only arbitrary and subject to endless disputes; it was a mere culling from the maze of mental phenomena of what suited a particular system, sensationalistic or idealistic. Kant saw that, before we could classify to any purpose such complex products as those of thought, we must come to some understanding of the process which produces the products. Let me first know, for instance, what conscious experience is; after that I can better decide whether a given idea is to be classed under products of experience or of some mystic *a priori* power of intuition.[1] Kant, then, propounded the supreme question of philosophy; somewhat obscurely, indeed, but still clearly enough to make it henceforth the focus of all wise speculative research. That was honor enough for one man. It was not given him to answer the question he had propounded. It was impossible for him to work himself clear all at once from the bewilderment and prepossessions of the old methods.

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[1] Prof. Adamson, the ablest English interpreter of German philosophy, in his book upon Fichte, reaches precisely the same conclusion as that here outlined concerning the nature of Kant's real contribution to philosophy. This testimony is the more notable, since Prof. Adamson has no theory to support.

Besides, the specially mathematical bent of Kant's genius led him to a one-sided view of the problem. With great sagacity Hume had converged his whole skeptical attack upon the conception of causality, foreseeing that by this philosophy was to stand or fall. But Kant expressly described this as a blunder on the part of Hume; and he himself started off into what has proved an interminable and entirely profitless discussion of the alleged mathematical *a priorities.* By not keeping to Hume's lead, he lost the key to the philosophic problem. Hence that air of vagueness and paradox in the "Critique"; the amazing complexity of its details, the imperfect juncture and even contradiction of its parts, the lack of a unifying principle; which have made it so much of a riddle to modern thought.

*Fichte, Schelling, and Hegel.*—It is the fashion now to look somewhat disdainfully upon this great triumvirate, and even to doubt whether they were, in any good sense, continuators of Kant. But very plainly they were. They not only kept to Kant's problem, but they carried it nearer to a solution than he had been able to do. They brought to the light one element, at least, of the solution; and an element that has been of the greatest service to modern thought.

No one can look very closely into the workings of thought without being more or less impressed by the aspect of dualism everywhere presented. Kant not only recognized this in his fundamental distinctions between theoretic and practical reason, the matter and form of thought, etc., but also in his doctrine of the categories gives an express hint of a possible synthesis of these antithetical elements. He notes that "the third category of each class results from a combination of the first and second categories of the same class"; and expressly calls this fact "a challenge to reflection."

Fichte took up this challenge. His whole survey of consciousness is guided by the idea that the process of thinking is a synthesis between two antithetical elements. But Fichte did not extend his survey much beyond the perceptive states of thinking. Hegel, following Schelling, found this same aspect of dualism in the higher forms of thought—concepts and propositions; and he attempted to construct out of it a law governing the whole universe of phenomena. The service thus rendered to modern development it is mere bigotry to ignore. It has given birth to the most characteristic trait of the nineteenth century—the habit of seeking for the element of truth contained in each of two conflicting systems of thought. It has taught us to see in art, theology, language, and philosophy an ever-unfolding movement, always oscillating from one extreme to the other, but still always approaching nearer to final truth; in a word, it has substituted the historic for the dogmatic method in all studies pertaining to the human mind. Thanks to the Post-Kantian philosophy of Germany, there are no longer any systems of pure idealism or pure materialism, but a gradual coalescence of the two tendencies, very confused at present, but still giving promise of future harmony.

But the Post-Kantian philosophy did not get beyond a merely *empirical* discovery that thought was a synthesis of thesis and antithesis. It entirely failed to grasp the law of this synthesis. Fichte started from the purely formal and—as we have seen in Chapter I—misleading antithesis between subject and object; and his attempt to deduce all mental processes from this principle led through a wonderful maze of subtilities, only to paradox at last. His successors clung to the same starting-point, and thus gained a conception of the universe not essentially different from that of Spinoza. Hegel, indeed, used to boast that he had replaced the Spinozistic idea of the absolute Substance by that of Spirit or subject; but in reality the difference is not so great as he supposed. Both the category of substance and that of subject are merely derivative; substance is but one way of conceiving the cause of certain effects; the subject is that which is conscious of itself as the cause of its mental states. Only when we rise from these derivative categories to one that includes them both and much more besides—the primitive all-embracing category of cause and effect—do we gain a genuine theism.

Kant claimed for himself in philosophy the rôle of Copernicus in astronomy, and with right. By propounding the true philosophic problem he reversed the entire order of speculation, and taught men to seek in the nature of human consciousness for the key to all the ancient controversies. Not content with this, however, Kant also hinted at a possible parallel between his own labors and those of Newton. But evidently neither he nor his continuators reached that high place; a vast array of logical subtilities, a mere construction of scholastic refinements, always labored and sometimes confused and contradictory, is something very different from the simplicity and clearness of a Newtonian induction. And yet philosophy, which is but the final induction —the grasping of all the results of experience under one unifying principle—ought, above all else, to be simple and clear.

*The Philosophy of Common Sense.*—This philosophy, so highly esteemed in Scotland and England, is to a certain extent justified from our present point of view. The great systems of speculation we have found to be the products of a one-sided tendency; they have put too exclusive an emphasis upon one or the other of the two antithetical elements of thought. There is a kind of theoretic insanity about them; method, but not balance. Common sense, on the contrary, is mental health; it is the natural equipoise which the mind maintains when not disturbed by speculative extravagance. *Therefore*, the conclusions of a perfect philosophy ought to be in harmony with those of common sense. But that is something very different from saying that philosophy is but a somewhat pretentious form of common sense—a mere registry of truths for which there is no ground of assurance save the general belief of mankind. Common sense has, in fact, no philosophy. It has only certain roughly balanced anticipations of the truth, with which the reasoned conclusions of philosophy ought, for the most part, to coincide.

*Agnosticism.*—Even in this there is an element of deep truth. One of the most fundamental principles of this essay has been that neither of the two antithetical elements of thought is, *by itself*, an object of true knowledge. Either cause or effect without its correlate is unknowable. Thus, in the simplest act of external perception, we know the cause—the object—only through its effects; conversely, the effect—the sensation—is a process for the most part inscrutable, going on in the deepest darkness. A clear, distinct object of knowledge only emerges from a synthesis of these two elements, each unknowable by itself. And so everywhere. That, in fact, is the true doctrine of the relativity of knowledge; nothing known except relatively to something else—except in the relation of cause and effect.

The fatal error of agnosticism consists in seeing only one half of this truth. From Kant downward it has always assumed that phenomena—effects by themselves—were fully known; but that causes—especially the conscious self and the Infinite Cause—lay wholly beyond the limits of knowledge. We have followed this assertion through all the processes of thought, and we now know it to be altogether arbitrary and one-sided. The true law of nescience is wider but less baleful than this. The Infinite Cause, the whole universe of effects—each of these is equally unknowable out of relation to the other. But human progress has always consisted, and ever will consist, in an advancing knowledge of both, through their mutual relation.

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# CRITIQUE OF KANTIAN PHILOSOPHY.[1]

TRANSLATED FROM THE GERMAN OF PROF. DR. KUNO FISCHER, BY W. S. HOUGH.

## Chapter I.

### *The Kantian Philosophy as Doctrine of Knowledge.*

In order to undertake a criticism of the Kantian philosophy, it will be necessary, first of all, to review briefly its fundamental principles, and allow every distorted or false view which would destroy the conception of the system to give place to the accurate and true one. For one can only justly criticise what one has

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[1] It should perhaps be mentioned that this "Critique," as well as being published separately under the above title ("Kritik der Kantischen Philosophie," Munich, Fr. Bassermann, 1883), also appears in Vol. V of Kuno Fischer's "Geschichte der neuern Philosophie," as an "Introduction to the History of Post-Kantian Philosophy," it being a brief *résumé* of the two preceding expository volumes on Kant, together with the author's criticism of the Kantian doctrines. It is, then, strictly speaking, a Critical Exposition. In quoting from Kant, Prof. Fischer has made use of Hartenstein's *first* edition. (Leipzig, Leop. Voss, 1838.)—Tr.